Sundance Energy Project Draft Environmental Impact Statement

DOE/EIS - 0322 **March 2001**

Western
AREA POWER
ADMINISTRATION

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Draft Environmental Impact Statement

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COVER SHEET

Title: Sundance Energy Project, Pinal County, AZ, Draft Environmental Impact Statement

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ABSTRACT

Sundance Energy LLC (Sundance) has applied to the Western Area Power Administration (Western) to interconnect a planned generator facility to Western's transmission system in the vicinity of Coolidge, Arizona. Western's proposed action is to enter into an interconnection and construction agreement with Sundance for the requested interconnection. The proposed interconnection would integrate the power generated by the Sundance Energy Project (Project) into the regional transmission grid and would allow Sundance to supply its power to the competitive electric wholesale market.

The proposed Project would be built on private lands southwest of Coolidge. The proposed Project would be a Apeaking power plant project@ which means it would provide energy when it is needed during peak demand periods in the region. The proposed Project would also be a Amerchant plant@ which means it is not owned by a utility and there is currently no long-term commitment or obligation by any utility to purchase the energy generated by the power plant.

Western, as a major transmission system owner, must generally provide access to its transmission system when requested by an eligible organization per existing policies, regulations and laws. The proposed Project would consist of the construction and operation of a generating facility; construction of a 14-mile pipeline to supply natural gas to the proposed Facility; a new 230-kV bay at an existing substation; a new double-circuit 230-kV transmission line; a new single-circuit 230-kV transmission line; an upgrade of a 115-kV line to 230-kV specifications; and an upgrade of an existing substation. Three alternatives would consist of different locations of the 230-kV transmission lines and would not involve upgrading the 115-kV line or the existing substation.

SUMMARY

Sundance Energy LLC (Sundance) has applied to the Western Area Power Administration (Western) to interconnect a planned generator facility to Western's transmission system in the vicinity of Coolidge, Arizona in Pinal County, southwest of Phoenix. Western's proposed action is to enter into an interconnection and construction agreement with Sundance for the requested interconnection. The proposed interconnection would integrate the power generated by the project into the regional transmission grid and would allow Sundance to supply its power to the competitive electric wholesale market. Western's formal process for determining the availability of transmission capacity for the proposed interconnection is in its preliminary stages. The evaluation of environmental impacts in this EIS is one of these preliminary steps. At this point, it is foreseen that there is enough potential capacity to continue the formal determination process.

Sundance proposes to construct and operate the Sundance Energy Project (Project), a natural gas-fired, simple cycle power plant on private lands southwest of Coolidge. The proposed Project would consist of a nominal 600 megawatt (MW) natural gas fired, simple cycle peaking generating facility and associated infrastructure, newly constructed and upgraded transmission lines, a pipeline to supply additional natural gas, a water supply well, and access roads. Under the No Action Alternative, Western would reject the Sundance application to interconnect to Western's transmission system, and the proposed facility, transmission lines, and pipeline would not be built. Sundance may appeal Western's decision to the Federal Energy Regulatory Commission

This Environmental Impact Statement (EIS) was prepared in accordance with Section 102(2) of the National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. 4332, Council of Environmental Quality regulations, and U.S. Department of Energy (DOE) NEPA Implementing Procedures (10 CFR 1021). Western is the lead Federal agency, as defined by 40 CFR 1501.5.

Western will use the information provided in this EIS to support Federal decisions for the proposed Project. Western will decide whether to enter into an interconnection and construction agreement with Sundance and, if approved, the best way to interconnect the proposed Project into the Western transmission system to provide the needed transmission services.

UNDERLYING PURPOSE AND NEED FOR AGENCY ACTION

Sundance is responding to the need to provide additional supply of electricity to the Phoenix metropolitan area and surrounding region during peak demand periods. Reserve margins (generation supply - peak load) have decreased considerably in the region over the past decade. Sundance has a need to make a profit selling its power in the regional wholesale market. Based on these needs, Sundance purposes include siting the proposed Project near existing gas and water supplies, and transportation facilities near the Coolidge Substation, thus interconnecting with the Phoenix 230-kV loop, and away from densely populated residential areas. Sundance purposes also include benefiting Pinal County by increasing the reliability of the local electrical system and using land available at marketable rates.

PURPOSE AND NEED FOR AGENCY ACTION

Western, as a major transmission system owner, must generally provide access to its transmission system when it is requested by an eligible organization per existing policies, regulations and laws. Sundance applied to interconnect its proposed power plant with Western=s transmission line system in the vicinity of Coolidge.

The purposes of the Proposed Action include:

- To meet the requirements of Western=s Open Access Transmission Service Tariff, which is intended to meet the intent Federal Energy Regulatory Commission of (FERC) Order No. 888 in providing non-discriminatory transmission access.

- To provide transmission service and capacity for the proposed Project without degrading service to existing customers.

- To ensure transmission system reliability is maintained.

- To cause the minimum practical adverse environmental effects, consistent with sound land management practices.

Although the Federal action is to decide whether to allow Sundance to interconnect to Western's transmission system, the construction and operation of the proposed Project is a directly connected action. Therefore, this document evaluates the proposed Project as well as the interconnection.

SCOPING

The Notice of Intent to prepare an EIS for the proposed Project was published in the *Federal Register* on September 1, 2000. Comments received on issues to be evaluated in the Sundance Energy Project EIS included: the need for the proposed Project; proposed Project alternatives; public role in decision making; effects on the rural character of the area; routing and height of new transmission lines; and effects on the biological, cultural, water, and visual resources, as well as on air quality and noise. These issues are included in the analyses and discussions presented in this EIS. In addition, consultations have been initiated with Federal, state, and local resource management and regulatory agencies as well as interested tribal governments.

PROPOSED ACTION AND ALTERNATIVES

The proposed Project would consist of the construction and operation of a generating facility (Facility); construction of a 14-mile pipeline to supply natural gas to the proposed Facility; a new 230-kV bay at an existing substation; a new double-circuit 230-kV transmission line; a new single-circuit 230-kV transmission line; an upgrade of a 115-kV line to 230-kV specifications; and an upgrade of an existing substation. Three alternatives would consist of different locations for the 230-kV transmission lines.

NO ACTION ALTERNATIVE

Under the No Action Alternative, Western would not allow Sundance to interconnect with Western's transmission system. Without the ability to interconnect to Western's transmission lines, the proposed Project would not be feasible and would not be built. Sundance may appeal Western's decision to the Federal Energy Regulatory Commission. Upon hearing the appeal FERC may or may not reverse Western's decision.

IMPACTS

Resource areas evaluated for potential impacts include land use, air quality, noise, infrastructure, water resources, geology and soils, biological resources, cultural resources, visual resources, transportation, socioeconomics, and environmental justice. Table S-1 summarizes the environmental consequences of the Proposed Action and alternatives. The most significant resource area impact of the Proposed Action would be visual resources. The proposed Facility's 60- and/or 100-foot tall stacks and 120 foot transmission pole structures would have a strong linear, vertical form that would contrast with the surrounding flat, horizontal landscape. The visual quality impacts of the vertical structures would be minor because the structures would be seen by a relatively small number of residents and travelers. No significant or long-term impacts are expected in other resource areas. Short-term effects would be primarily related to construction activities and would, for the most part, return to normal after construction has been completed.

The Proposed Action would have positive effects on some resource areas including the following:

- The local economy would experience a small boost over the life of the project due to payroll earnings and construction expenditures.

- The assessed value of the Property would increase and result in a substantial increase in property revenues to the local taxing district.

Table S-1
Environmental Consequences

Affected Environment	Proposed Action	No Action	Alternative
LAND USE	**Facilities** No long-term impacts to land uses. Minimal impacts related to siting, construction, and operation of the proposed Facility. Short-term impacts would include increased daytime noise and dust during construction. An access road would be constructed on the Property. No disruption to land uses from access road construction. Overall recreation activities would not be significantly affected. Paving a segment of Randolph Road would negatively impact horseback riding along the road, but other unimproved roads in the area could offer enjoyment of equestrian activities. **Pipelines** No permanent disturbance to croplands. Construction on agricultural land would cause temporary loss of crops on the construction right-of-way (ROW) (about 124 acres). A year=s loss of crops could occur along the ROW. Crop yields may be reduced for one to two years following construction. Temporary construction disturbance of about 36 acres of vacant land, 9 acres of industrial land, and 1.2 acres of urban/residential land. Short-term effects would include noise, dust, and traffic detours during construction. Access would be from existing local, county, and state roads. Proposed natural gas line would be compatible with future land use planning. **Transmission Lines** No impacts to existing land status and land uses. Permanent ROW would be affected by the removal of about five acres of vegetation during the installation of tower structures related to ED2 Line upgrades and 0.5 acres between the proposed Facility and Signal Substation. No long-term impacts are expected to other land uses within or adjacent to the new line from the proposed Facility to the Liberty-Coolidge Line. The location of the transmission lines would not change,	No impacts to existing land uses in the area.	**Alternative 1** The amount of land disturbed would be 11.2 acres along the ROW. All other impacts would be similar to impacts for the Proposed Action. **Alternative 2** The same as Alternative 1. **Alternative 3** About 6.8 acres of cropland and 7.2 acres of native vegetation on State Trust land would be disturbed during the installation of structures related to this alternative.

Table S-1
Environmental Consequences

Affected Environment	Proposed Action	No Action	Alternative
LAND USE (continued)	therefore, there would be minimal impacts to crop dusting in the area. Short-term effects to residential areas related to construction and operation would include noise, dust, and traffic detours,; obstruction of traffic at road crossings; and maintenance activities including the physical intrusion of crew and equipment on private lands. No impacts to recreational uses.		
AIR QUALITY	**Facilities** Minimal air impacts due to construction and operation of the proposed Facility. Configuration 1 would result in the maximum impact. Maximum annual NO_x and 24-hour PM_{10} concentrations are predicted to occur on the high terrain to the west and northwest of the proposed Facility on the eastern ridges of the Sacaton Mountains. The proposed Facility would be a major PSD source for NO_x and CO. For Configuration 1, the PSD Class II increment consumption in significance area of proposed Facility would be 21 percent of NO_2 PSD Class II increment of 25 Fg/m^3. For Configuration 2, the PSD Class II increment consumption in significance area of proposed Facility would be 11.56 percent of NO_2 PSD Class II increment. Visibility is predicted to decrease five percent one day in the Class I airshed, Superstition Wilderness, in December and March. Acid deposition impacts are predicted at two Class I airsheds, Superstition Wilderness and Saguaro West National Park. **Pipelines** Fugitive dust emission impacts are expected from construction activities along the ROW. Impacts are comparable to current agricultural activities in the area. **Transmission Lines** Fugitive dust emission impacts are expected from construction activities.	No impacts to air quality in the area.	**Alternative 1** The same as the Proposed Action. **Alternative 2** The same as the Proposed Action. **Alternative 3** The same as the Proposed Action.

Table S-1
Environmental Consequences

Affected Environment	Proposed Action	No Action	Alternative
AIR QUALITY (continued)	Impacts are comparable to current agricultural activities in the area.		
NOISE	**Facilities** The proposed Facility noise levels for the proposed configurations are not expected to exceed 55 dBA. Residences nearest to the 55 dBA noise level could experience increase noise of about 10 dBA above assumed rural background noise level. No blasting is expected during construction. **Pipelines** Noise levels above background (40-45 dBA) during construction. Construction noise would be at one-mile intervals of pipeline construction along the ROW. **Transmission Lines** Noise levels elevated above background during construction. Long-term corona audible noise from transmission lines but this noise is usually lost in background noise beyond the transmission ROW.	No impacts to noise emissions in the area.	**Alternative 1** The same as the Proposed Action. **Alternative 2** The same as the Proposed Action. **Alternative 3** The same as the Proposed Action.
INFRASTRUCTURE/ WASTE MANAGEMENT	**Facilities** *Electric and Magnetic Field (EMF) Effects* EMF effects are associated with transmission lines. Effects negligible associated with changes to Coolidge and Signal substations. *Infrastructure* No substantial impacts to local area power supplies or natural gas supply. *Waste Management* Potential contamination hazard from the storage and use of fuel, lubricants, and other fluids during construction of plant and access road. No significant effects to municipal solid waste facilities related to the generation of solid waste. **Pipelines** *EMF Effects* Potential for induced currents in pipelines from Western's high voltage lines.	No impacts to infrastructure and waste management.	**Alternative 1** The same as the Proposed Action. **Alternative 2** The same as the Proposed Action. **Alternative 3** The same as the Proposed Action.

Table S-1
Environmental Consequences

Affected Environment	Proposed Action	No Action	Alternative
INFRASTRUCTURE/ WASTE MANAGEMENT (continued)	*Infrastructure* Natural gas pipeline to only service the proposed Facility. Gas company could potentially decide to extend the pipeline to the northwest, which could increase availability of natural gas in the region. *Waste Management* Potential contamination hazard from the storage and use of fuel, lubricants, and other fluids during construction. Impacts would be minimized by the restriction of refueling activities from dry washes and by requiring immediate cleanup of spills and leaks. **Transmission Lines** *EMF Effects* No significant potential for corona effects and field effects. Magnetic field would be similar to that of common household appliances. Health effects would be similar to those for existing lines. *Infrastructure* No substantial impacts to local power supplies are anticipated. Power requirements expected to be equivalent to an agricultural warehouse or processing plant. *Waste Management* Potential contamination hazard from the storage and use of fuel, lubricants, and other fluids during construction. Impacts would be minimized by the restriction of refueling activities from dry washes and by requiring immediate cleanup of spills and leaks.		

Table S-1
Environmental Consequences

Affected Environment	Proposed Action	No Action	Alternative
WATER RESOURCES	**Facilities** *Surface Water Quantity* No impacts expected from the use of CAP water to other users. The proposed Facility usage expected to help defray operation and maintenance costs of CAP system. *Surface Water Quality* No impacts expected from the extraction of CAP water. Potential contamination from storage and use of fuels, lubricants, fluids, and chemicals during construction and operation. Minimal impacts to drainage patterns are anticipated. *Groundwater Quantity* Minimal impacts to other users are anticipated from groundwater usage. Groundwater pumping is expected to have minimal impact on the Pinal AMA aquifer. No subsidence is anticipated from groundwater pumping. *Groundwater Quality* No impact is expected from construction and operation of the proposed Facility. Potential impacts from potential spills or leaks of fuel, lubricants, fluids, and chemicals during proposed Facility operation. Effluent water quality would be similar to quality of backup water wells. No impacts from use of effluent water for agriculture. No impacts anticipated from blending water prior to agricultural use. **Pipeline** *Surface Water Quantity* Increased runoff is anticipated related to storms and large flow events in disturbed areas. *Surface Water Quality* Potential impacts associated with construction and hydrostatic testing. Potential for increased erosion, sedimentation, turbidity, release of chemical and nutrient pollutants; and	No impacts to surface water or groundwater in the area.	**Alternative 1** The same as the Proposed Action. **Alternative 2** The same as the Proposed Action. **Alternative 3** The same as the Proposed Action.

Table S-1
Environmental Consequences

Affected Environment	Proposed Action	No Action	Alternative
WATER RESOURCES (continued)	introduction of chemical contamination from fuels and lubricants. No impacts are expected from the use of effluent water for agriculture. *Groundwater Quantity* No impacts are anticipated to groundwater quantity. *Groundwater Quality* Potential impacts from potential spills or leaks of fuel, lubricants, and fluids construction activities. **Transmission Lines** *Surface Water Quantity* No impacts to surface water resources are anticipated related to construction along transmission lines in the area. *Surface Water Quality* Potential impacts from increased sedimentation and turbidity during construction. Potential impacts from accidental spills of fuel, lubricants, and fluids during construction. *Groundwater Quality & Quantity* No groundwater resources would be impacted.		
GEOLOGY AND SOILS	**Facilities** *Geology* Minimal impacts from slope failure and soil erosion. No impacts to sand and gravel availability. Seismic risk is low to moderate. Quick alluvial deposits should be relatively stable. *Soils* Soil erosion impacts are expected to be minor due to minimal rainfall and slopes of less than one percent. **Pipelines** *Geology* Minimal impacts from slope failure. Seismic risk is low to moderate; quick alluvial deposits should be relatively stable.	No impacts to geology and soils in area.	**Alternative 1** The same as the Proposed Action, except about 11.2 acres would be disturbed. **Alternative 2** The same as the Proposed Action. **Alternative 3** The same as the Proposed Action, except that an additional 14 acres would be disturbed.

Table S-1
Environmental Consequences

Affected Environment	Proposed Action	No Action	Alternative
GEOLOGY AND SOILS (continued)	Potential for flash flooding in narrow washes along ROW. *Soils* About 124 acres of prime farmland soils would be disturbed which would alter soil structure and impact productivity. **Transmission Lines** *Geology* Minimal impact on future sand and gravel extraction within the ROW. Minimal risk of rockfalls and landslides. Seismic risk is low to moderate; quick alluvial deposits should be relatively stable. *Soils* About 6.6 acres of prime farmland soils would be disturbed which would alter soil structure and temporarily impact productivity. Minimal impacts from slope failure and soil erosion.		
BIOLOGICAL RESOURCES	**Facilities** *Vegetation and Wildlife* Potential impacts to vegetation and wildlife. Potential loss and/or disturbance of 50 acres of sparsely vegetated native habitats during construction. Potential loss of food, cover, habitats, and/or breeding sites for some species. *Special Status Species* No adverse impacts are anticipated to special status species in Pinal County. **Pipelines** *Vegetation and Wildlife* Potential impacts to vegetation due to the loss and/or disturbance to native plant communities; disturbance of about 124 acres of croplands and loss of 36 acres of sparse native vegetation. *Special Status Species* Potential adverse effects for species known to occur in Pinal County. About 110 acres of mountain plover habitat would be temporarily disturbed. Minimal impact expected due to loss of habitat.	No impacts to biological resources in the area.	**Alternative 1** *Vegetation and Wildlife* Croplands would be eliminated in areas where tower structures would be installed. Croplands would be eliminated in small areas during installation of new structures to reroute the Coolidge-ED2 Line. ***S**pecial Status Species* No impacts would occur. **Alternative 2** Impacts are the same as those in Alternative 1. **Alternative 3** Temporary loss of 7.2 acres of native vegetation. Minimal impacts to wildlife habitat. No impacts to special status species.

Table S-1
Environmental Consequences

Affected Environment	Proposed Action	No Action	Alternative
BIOLOGICAL RESOURCES (continued)	**Transmission Lines** *Vegetation and Wildlife* No impacts due to the construction of the four-mile transmission line. *Special Status Species* No impacts would occur.		
CULTURAL RESOURCES	**Facilities** No significant historic properties were found in the proposed Site during previous cultural surveys. Prehistoric artifact scatter was recorded outside the area of potential effect. **Pipelines** Past investigations indicate a low potential for significant historic or prehistoric sites. Previous inventories would be reviewed before construction. Potential disturbances not covered by previous investigations would be inventoried before construction. **Transmission Lines** Inventories have not been completed in the proposed affected area. Inventories would be completed before construction begins. Past inventories in general area indicate a high likelihood for sites along north end of the Signal-Coolidge upgrade. The Signal Switchyard appears less likely to contain significant historic properties.	No impacts to cultural resources in the area.	**Alternative 1** Similar potential to the Proposed Action with the exception of rerouting. Disturbances caused by rerouting the Coolidge-Signal Line from section 19 to the Coolidge Substation and replacement of structures located near areas with a high potential for the presence of potential significant historic and prehistoric resources. These potentially affected areas would be inventoried before construction begins. **Alternative 2** The impacts are the same as Alternative 1. **Alternative 3** The impacts are the same as Alternative 1.
VISUAL RESOURCES	**Facilities** Impacts to visual landscape from the addition of buildings, exhaust stacks, and night lighting when viewed from sensitive viewpoints, travel routes, recreation areas, and residences. **Pipelines** Short-term impacts due to construction and operation of gas pipeline. Short-term impacts due to vegetation removal in the ROW until vegetation has been reestablished in disturbed areas. No impacts to croplands after the ROW has been replanted with crops. **Transmission Lines** Short-term impacts during construction while using local roads. Significant long-term impacts to the landscape from the	No impacts to viewshed in the area.	**Alternative 1** The new one-half mile line constructed between Coolidge-ED2 and Coolidge-Signal lines, and the associated structures would be more visible in the foreground by visitors to Casa Grande National Monument. The structures would not be visible to Casa Grande National Monument at a distance of 2.5 miles. **Alternative 2** The impacts are the same as Alternative 1.

Table S-1
Environmental Consequences

Affected Environment	Proposed Action	No Action	Alternative
VISUAL RESOURCES (continued)	installation of pole structures when viewed from sensitive viewpoints and in scenic landscapes. New transmission pole structures from the construction of the new 4.2 and 1.5 mile lines between the proposed Facility and the Signal Substation would be visible to a small number of residents and travelers on nearby county roads. Structures would be visible to a small number of residents and travelers. The nearest locations that a significant number of people would be able to view the structures associated with the construction of the line between Signal Substation and the interconnect with the Liberty-Coolidge Line would be 1.5 miles away in Coolidge and Casa Grande National Monument. No impacts from the upgrade of the line between the interconnection and Coolidge Substation. Transmission line structures would not be visible to visitors at Casa Grande National Monument at a distance of 2.5 miles.		**Alternative 3** The impacts are the same as Alternative 1.
TRANSPORTATION	**Facilities** Access road would be entirely within the Property. Short-term traffic impacts from construction activities and construction traffic are expected at the junction of Randolph Road and the access road. Short-term traffic delays may occur in Coolidge due to the large vehicles delivering equipment. **Pipelines** Short-term construction related traffic impacts at highway crossings. **Transmission Lines** Access to ROW would be from Tweedy Road. Access to existing ROW expected to cause temporary traffic impacts from construction-related traffic stops and lane closures. Access to new ROW would be from existing county roads.	No impacts to traffic and roadways in the area.	**Alternative 1** Traffic related impacts are similar to the Proposed Action minus traffic related to the construction of lines between the proposed Facility and Signal Substation and the Coolidge-ED2 upgrade. **Alternatives 2** Traffic impacts would be the same as Alternative 1. **Alternative 3** Traffic impacts would be similar to Alternative 1 with one exception. Since the new 230-kV lines would not be constructed along Tweedy Road, temporary traffic disruptions along Tweedy Road would not occur.

Table S-1
Environmental Consequences

Affected Environment	Proposed Action	No Action	Alternative
SOCIOECONOMICS	**Facilities** Local labor market and economy may be affected. Direct employment of labor related to facility construction and operation. Indirect labor effects related to services provided by support industries. Local economy would be affected by direct project spending and induced economic effects. Minimal effects to public utilities, services, and schools in Coolidge and Phoenix. **Pipelines** Pipeline construction expected to have minimal impact on the economy. Payroll and construction expenditures and property taxes are expected to benefit Pinal County. **Transmission Lines** Construction and operation is expected to have minimal impacts to local economy. Minimal impacts on local emergency services expected. Local area and regional systems are expected to benefit from the increased supply and reliability of power.	No impacts to the local labor market, economy or housing.	**Alternative 1** The same as the Proposed Action. **Alternative 2** The same as the Proposed Action. **Alternative 3** The same as the Proposed Action.
ENVIRONMENTAL JUSTICE	**Facilities** No impacts to environmental justice from construction and operation of the facility. **Pipelines** No impacts to environmental justice from construction and operation of pipelines. **Transmission Lines** No impacts to environmental justice from construction and operation of transmission lines.	No impacts to environmental justice.	**Alternative 1** The same as the Proposed Action. **Alternative 2** The same as the Proposed Action. **Alternative 3** The same as the Proposed Action.

LIST OF FIGURES

LIST OF TABLES